

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

ORIGINAL

In the Matter of)

THE KA-BAND STREAMLINING)
COALITION)

RM-_____

Petition for Rulemaking to Streamline)
Authorization of Communications With)
Space Stations Operating in the)
Conventional Ka-Band)

FILED/ACCEPTED

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Federal Communications Commission
Office of the Secretary

**PETITION FOR RULEMAKING OF
THE KA-BAND STREAMLINING COALITION**

The Ka-Band Streamlining Coalition (the "Coalition"), composed of ten companies that operate, are licensed to operate, and/or are interested in operating Ka-band space and earth stations,¹ hereby requests that the Commission commence a proceeding to amend Section 25.201 of its rules and its established policies, procedures, and requirements to afford a more streamlined procedure for authorizing communications with Geostationary Orbit Fixed-Satellite Service ("GSO/FSS") space stations operating in conventional Ka-band frequencies (18.3-18.8/19.7-20.2 GHz downlink, 28.35-28.6/29.25-30.0 GHz uplink) comparable to procedures available for authorizing communications with GSO/FSS space stations operating in the conventional C- and Ku-

¹ The members of the Ka-Band Streamlining Coalition are: The DIRECTV Group, Inc.; ICO Global Communications; Intelsat, Ltd.; Loral Space & Communications, Inc.; ManSat LLC; Northrop Grumman Corporation; Telesat; SES Americom, Inc.; ViaSat Inc.; and WildBlue Communications, Inc.

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bands.² Specifically, the Coalition proposes that (1) the “ALSAT” earth station designation be broadened to include GSO/FSS Ka-band operations, (2) GSO/FSS Ka-band satellites be eligible for inclusion on the Commission’s Permitted Space Station List (“Permitted List”), and (3) the definitions of “Permitted Space Station List” and “Routine processing or licensing” in Section 25.201 be amended to include GSO/FSS Ka-band operations.

Making this change would facilitate the grant of authority to communicate with the growing fleet of Ka-band spacecraft and would be a logical extension of existing Commission rules and policies. At the same time, the proposed change would not alter in any material respect the manner in which the Commission authorizes the use of Ka-band spacecraft that serve the United States. Given the stable Ka-band GSO/FSS operating environment established over the last few years and the interference protection afforded by two-degree spacing policies applicable to the band, it is appropriate that Ka-band earth and space stations be made eligible for the streamlined authorization procedures already enjoyed in the C- and Ku-bands.

BACKGROUND

In order to place this Petition in context, it is instructive to compare the evolution of the Commission’s space and earth station licensing policies for C-/Ku-band operations and for Ka-band operations. The C- and Ku-bands are well established, with a longer satellite pedigree and more space and earth stations in operation than in any other FSS band. Moreover, the interference environment has been defined by the Commission’s two-degree spacing policies for the last 25 years. Satellite use of the Ka-band is a more

² The conventional FSS frequencies at C-band are 3700-4200 MHz and 5925-6425 MHz, and at Ku-band are 11.7-12.2 GHz and 14.0-14.5 GHz.

recent development, but is beginning to increase as more spectrum is required for today's capacity-hungry communications applications and desirable orbital locations in the more established bands become increasingly scarce. While C-/Ku-band operators enjoy the benefits of streamlining initiatives undertaken over the last fifteen years, those same initiatives have not yet been applied to the Ka-band. The Coalition believes it is time for this divergence to end.

A. Streamlining in the C- and Ku-bands

The first commercial satellite – operating in the C-band – went into service in 1965,³ and a decade later, the first commercial Ku-band satellites were launched.⁴ In this same period, the Commission established rules for routine processing of C-band antennas 9 meters or larger and Ku-band antennas 5 meters or larger in diameter.⁵ Over time, as the Commission gained greater experience with these systems, it adopted measures to license them more efficiently. For example, in 1983, the Commission adopted its landmark two-degree spacing regime in which reduced orbital spacing for space stations was achieved by improving antenna performance standards for earth stations.⁶ In 1987, it reduced the diameter of C- and Ku-band earth stations eligible for routine licensing to 4.1 meters and 1.2 meters, respectively.⁷

³ See *Communications Satellite Corp.*, 38 FCC 1298 (1965).

⁴ See *Satellite Business Systems*, 62 F.C.C. 2d 997 (1977) (“SBS”).

⁵ See *Establishment of Domestic Communication-Satellite Facilities by Nongovernmental Entities*, 22 F.C.C. 2d 86 (1970) (C-band); *SBS*, *supra* note 4 (Ku-band).

⁶ See *Licensing of Space Stations in the Domestic Fixed-Satellite Service*, 54 Rad. Reg. 2d 577 (1983).

⁷ See *Routine Licensing of Earth Stations in the 6 GHz and 14 GHz Bands Using Antennas Less than 9 Meters and 5 Meters in Diameter, Respectively, for Both Full Transponder and Narrowband Transmissions*, 2 FCC Rcd 2149 (Com. Car. Bur. 1987).

Prior to 1996, the Commission also had different licensing regimes for domestic satellites (*i.e.*, those operating in the “domestic” portion of the orbital arc) and separate systems located outside the domestic arc that provided international service (but were “separate” from the INTELSAT network). Routinely licensed FSS earth stations operating in the conventional C- and Ku-bands were typically licensed to communicate either with all domestic satellites – under an “ALSAT” designation for the permitted points of communication – or with specific U.S.-licensed separate systems and non-U.S. international satellites.⁸ Under that regime, a domestic earth station operator would have to modify its license to communicate with any satellite not included in the ALSAT designation, while an international earth station operator would have to modify its license to communicate with any satellite not designated on its existing license.

In its *DISCO I* order, the Commission eliminated the distinction between domestic and separate system satellites.⁹ In light of this change, it also eliminated the distinction between domestic and international earth stations communicating with U.S.-licensed space segment, and accordingly broadened the ALSAT designation to include all U.S.-licensed satellites providing FSS services in the conventional C- and Ku-bands.¹⁰ The Commission agreed with commenters that this change would obviate the need for repeated license modification requests, result in substantial savings, allow more rapid

⁸ See *Amendment of the Commission’s Regulatory Policies Governing Domestic Fixed Satellites and Separate International Satellite Systems*, 11 FCC Rcd 2429, ¶ 51 (1996) (“*DISCO I*”). For this purpose, an earth station is “routinely licensed” if it operates consistently with the technical requirements of Part 25 of the Commission’s rules. See 47 C.F.R. § 25.201.

⁹ *DISCO I*, ¶¶ 33-34.

¹⁰ *Id.*, ¶ 52.

service to customers, and enhance competition and operational flexibility.¹¹ However, earth stations communicating with non-U.S.-licensed satellites still had to have each individual space station listed as an authorized point of communication.

In the *DISCO II* order,¹² the Commission began to address this disparity through the process of implementing the market opening commitments made by the United States in the World Trade Organization Agreement on Basic Telecommunications Services (“WTO Agreement”) for the satellite services sector.¹³ Among other things, *DISCO II* established a procedure by which a service provider in the United States could request immediate access to a foreign in-orbit satellite that would serve the U.S. market.¹⁴ This procedure required a U.S. earth station operator seeking to communicate with a non-U.S. satellite to file an earth station application for an initial license or for a modification of its existing earth station license, listing the foreign satellite as a point of communication and demonstrating that the foreign satellite complied with the Commission’s technical requirements.¹⁵ Once the first earth station had been granted authority to communicate

¹¹ *Id.*, ¶¶ 53-55.

¹² *Amendment of the Commission's Regulatory Policies To Allow Non-U.S. Licensed Space Stations To Provide Domestic and International Satellite Service in the United States*, 12 FCC Rcd 24094 (1997) (“*DISCO II*”).

¹³ The Commission also established a framework under which it would consider access by foreign satellites not covered by the WTO Agreement.

¹⁴ *Id.*, ¶ 186.

¹⁵ The Commission also adopted a presumption in favor of entry where the satellite is licensed by a WTO Member country, and a requirement that the applicant show that the foreign licensing administration offers U.S. satellites effective competitive opportunities where the proposal is for Direct Broadcast Satellite, Direct to Home, or Digital Audio Radio Service, or where the licensing administration is not a WTO Member country. *Id.*, ¶¶ 39, 72, 98-99.

with the foreign satellite, future earth station applicants need only refer to the previous grant of market access rather than resubmitting the entire showing.¹⁶

In the *DISCO II Reconsideration Order*, the Commission streamlined the process further by allowing the operators of in-orbit non-U.S. FSS satellites themselves to request authority to provide space segment capacity to licensed earth stations in the United States.¹⁷ Under this process, the Commission conducts the analysis established in *DISCO II* for a particular non- U.S.-licensed space station and a particular satellite service, and issues a declaratory ruling to grant market access, including any additional operating conditions or constraints on earth stations accessing the satellite.¹⁸

Although the Commission concluded that “U.S. earth stations with ALSAT licenses should be permitted to communicate with any non-U.S. satellite [that meets the *DISCO II* standards] just as easily as they communicate with any U.S.-licensed satellite,” it nonetheless declined to expand the scope of the ALSAT designation to include satellites licensed by other administrations.¹⁹ Instead, the Commission created the Permitted List, which identifies all satellites and services with which any U.S.-licensed earth station with routinely authorized technical parameters is permitted to communicate without additional Commission action, provided that those communications fall within

¹⁶ *Id.*, ¶ 192.

¹⁷ *Amendment of the Commission's Regulatory Policies to Allow Non-U.S.-Licensed Space Stations to Provide Domestic and International Satellite Service in the United States*, 15 FCC Rcd 7207, ¶ 10 (1999) (“*DISCO II Reconsideration Order*”).

¹⁸ *Id.*, ¶ 12.

¹⁹ *Id.*, ¶ 16.

the same technical parameters and conditions established in the earth station's license.²⁰

The Commission chose to create the Permitted List rather than expand the ALSAT designation in recognition of the fact that it could not assume that foreign satellites would operate in conformity with the Commission's two-degree spacing requirements, and therefore could not gauge the potential consequences of authorizing blanket access to non-U.S. satellites.²¹

B. Development of the Ka-band

The Commission began to shape the Ka-band GSO/FSS landscape with a rulemaking initiated in 1993 that raised questions about allocating the 28 GHz band for use by terrestrial and satellite systems.²² After several years of considering various proposals, and informed by international spectrum allocation decisions made at the 1995 World Radiocommunication Conference, the Commission adopted band segmentation plans that allocated specific frequency ranges to each of the services that had previously shared both the 18 GHz and 28 GHz bands.²³

In 2000, the Commission further refined the segmentation of the 18 GHz portion of the band in order to facilitate deployment of new services.²⁴ With respect to satellite

²⁰ *Id.*, ¶ 19. ALSAT is the first entry on the Permitted List, and non-U.S. satellites are listed individually as they are granted U.S. market access.

²¹ *Id.*, ¶¶ 17-18.

²² *See Rulemaking to Amend Part 1 and Part 21 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band and to Establish Rules and Policies for Local Multipoint Distribution Service*, 8 FCC Rcd 557, ¶¶ 20-22 (1993).

²³ *See Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, 11 FCC Rcd 19005 (1996) ("28 GHz Band Plan Order").

²⁴ *See Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum*

services, the Commission sought to extend its GSO/FSS licensing policy based on uniform two-degree spacing between adjacent satellites. It noted that the rules for the C- and Ku-bands established a two-degree spacing regime by requiring systems to operate within defined uplink and downlink power density limits and with established earth station antenna performance standards.²⁵ Adopting an industry consensus plan, the Commission established similar limits for the Ka-band – specifically, a downlink PFD limit to protect satellite transmissions into the United States, and a limit on EIRP spectral density from transmitting earth stations as a function of off-axis angle to protect uplink transmissions.²⁶ Compliant earth stations that propose to operate with compliant space stations meeting these limits were made eligible for routine processing, and also for blanket licensing to the extent they operated in portions of the band not shared with any other service.²⁷ The Commission later amended its service rules to enable blanket licensing of transmit/receive earth stations throughout the entire portion of the band allocated for GSO/FSS Ka-band service.²⁸

in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use, 15 FCC Rcd 13430 (2000).

²⁵ *Id.*, ¶ 90.

²⁶ *See id.*, ¶ 92.

²⁷ *Id.*, ¶¶ 93-94; 47 C.F.R. § 25.138.

²⁸ *See Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use*, 16 FCC Rcd 19808, ¶ 52 (2001) (agreeing that the PFD limits in place “were already designed to ‘pre-coordinate’ spacecraft transmissions and terrestrial fixed service receivers regardless of the elevation angle and azimuth of the terrestrial receiver”). The Commission also established “sunset” dates at which point terrestrial systems operating in the shared portion of the band would lose their co-primary status with GSO-FSS operations. Specifically, terrestrial systems in the 18.58-18.8 GHz band lose co-primary status as of June 8, 2010, while those in the 18.3-18.58 GHz band lose such status as of November 19, 2012. *See* 47 C.F.R. § 101.147(r).

The Commission issued the first Ka-band GSO/FSS space station licenses over a decade ago.²⁹ The first U.S.-licensed commercial Ka-band satellite was launched in August 2003. Today, there are a dozen Ka-band spacecraft authorized to provide GSO-FSS service in the United States, including two licensed by Canada, and this number continues to rise. They are used to provide a variety of services, from direct-to-home video to broadband access to backhaul services.

DISCUSSION

As demonstrated in the background discussion above, the licensing regimes for C- and Ku-band satellite operations had largely matured before the first Ka-band satellite system was launched. Perhaps not surprisingly, the much greater level of experience with C-/Ku-band operations has allowed the Commission to implement more innovations in those bands than for other bands. For example, as explained in the *DISCO II Reconsideration Order*, the Commission has historically limited the ALSAT designation to only those earth stations offering FSS service in the conventional C- and Ku-bands because they operate in a stable environment, characterized by the long-standing technical rules underlying the two-degree spacing policy, which mitigates interference concerns.

There exists an established operating environment for these systems and it is possible to maintain acceptable levels of interference to other systems operating in the same environment when a licensee offering these services switches from one satellite to another. However, for services such as MSS and BSS, and FSS services which are not consistent with our two degree policies, service rules are either non-existent or recently adopted by the Commission. The operating environment for these services is continuing to evolve and could substantially change if an earth station licensee

²⁹ See *Assignment of Orbital Locations to Space Stations in the Ka-Band*, 13 FCC Rcd 1030 (Int'l Bur. 1997).

providing these services were to switch from one satellite to another without prior Commission authorization.³⁰

Such considerations at that time counseled a cautious approach to extending streamlining innovations to other frequency bands and services.

Development of the Ka-band over the last decade has radically changed this calculus. First, the Commission has developed and implemented a two-degree spacing regime in this band that is very similar to the one governing the C- and Ku-bands. As a result, Ka-band systems now enjoy a well-established, stable operating environment. Indeed, although hundreds of thousands of transmit/receive earth stations have been deployed across the country under both individual and blanket authorizations, the Coalition is aware of no instance in which a Ka-band GSO/FSS system either experienced or caused harmful interference.

Second, there is every reason to believe that Ka-band systems will be able to maintain acceptable levels of interference to other systems operating in the band when a licensee switches from one satellite to another. For example, the Ka-band implicates fewer issues of spectrum sharing with terrestrial systems than are the norm in the C-band. The Ka uplink band – *i.e.*, the band in which earth stations transmit – is not available for licensing of terrestrial systems.³¹ While a portion of the downlink band is shared on a co-primary basis with a limited number of grandfathered terrestrial links, those links become secondary in the next one to three years³² – and in any event, only pose an interference

³⁰ *DISCO II Reconsideration Order*, n.19.

³¹ *See, e.g., 28 GHz Band Plan Order*, ¶ 42 (showing uplink band plan); 47 C.F.R. §§ 101.101, 101.147(a) (showing no fixed microwave services in the 28.35-28.6 GHz/29.25-30.0 GHz bands).

³² *See* 47 C.F.R. § 101.147(r) (terrestrial fixed operations in the 18.3-18.58 GHz band become secondary as of November 19, 2012, and those in the 18.58-18.8 GHz band become secondary as of June 8, 2010).

threat *to* Ka-band satellite receive antennas directly along their paths, but would not receive interference *from* them.

Although government systems also operate in the downlink portion of the Ka-band, the streamlining measures proposed herein would have no effect on the ability of commercial systems to co-exist with them. Under footnote US334 of the U.S. Table of Frequency Allocations, all commercial Ka-band operators must coordinate their downlink operations with federal satellite systems operating in the band.³³ Because this limitation applies only to the downlink band, it is most appropriately addressed in space station authorizations. To date, the Commission has consistently incorporated a coordination requirement as a condition of licensing (for U.S. space stations) and market access (for non-U.S. systems).³⁴ Accordingly, allowing an earth station to receive signals from any satellite that is already obligated to coordinate in this way would not pose an additional threat to federal systems operating in the band.

Building upon this stable operating environment, the Ka-band has become home to mass-market commercial services, including DIRECTV's multichannel direct-to-home video service and the broadband access services provided by WildBlue and Hughes Network Systems. As these services have grown, so too has the need for streamlined licensing procedures. At present, a routinely licensed earth station will be authorized to communicate in the conventional C- and Ku-bands with any FSS satellite licensed by the U.S. or authorized by the Commission to access the U.S. market, and may communicate

³³ See 47 C.F.R. § 2.106, footnote US334.

³⁴ See, e.g., *Hughes Communications Galaxy, Inc.*, 13 FCC Rcd 1351, ¶ 38 (Int'l Bur. 1997); *Telesat Canada*, 17 FCC Rcd 25287, ¶ 39 (Int'l Bur. 2002).

with any subsequently launched satellite without seeking any modification of its license. By contrast, a Ka-band earth station operator must list each U.S. and foreign satellite at a specific location individually as an authorized point of communication on its license, and must secure a modification of its license each time it wants to communicate with a new or different satellite, or with a previously authorized satellite that is moved to a new location. Thus, whenever a new Ka-band satellite is launched, or an operating Ka-band satellite is moved to a new location, all existing licenses for earth stations wishing to communicate with this new, or recently relocated, satellite must be modified.³⁵ This places an unnecessary burden on not only Ka-band earth station licensees, but on the Commission staff that must process these applications as well.

The streamlining measures proposed herein would alleviate that burden. Just as the Commission found in expanding ALSAT to include all U.S.-licensed satellites providing FSS services in the conventional C- and Ku-bands, a further expansion to include Ka-band operations within ALSAT and the Permitted List would obviate the need for repeated license modification requests, result in substantial savings, allow more rapid service to customers, enhance competition, and improve operational flexibility of Ka-band networks.³⁶ Given these public interest benefits and the rapid development of the Ka-band, the Coalition submits that the time has come to afford Ka-band systems the same streamlined licensing procedures available to C- and Ku-band systems.

³⁵ For example, whenever DIRECTV launches a new Ka-band satellite – as it is scheduled to do later this year – it must seek modification of each of the 28 Ka-band earth station authorizations it currently holds in order to maintain the infrastructure flexibility required in its overall network. Other Ka-band operators also hold multiple earth station authorizations. For example, WildBlue holds six licenses for gateway earth stations, while HNS holds five licenses for V-SAT networks.

³⁶ *DISCO I*, 11 FCC Rcd at ¶¶ 52-55. Existing earth station licenses would need a one-time modification to add ALSAT as a point of communication in order to effectuate this streamlined regime.

PROPOSED RULE CHANGES

Section 25.201 includes two definitions that will need to be amended to reflect adoption of the change in policy proposed in this Petition. First, the definition of the “Permitted Space Station List” is explicitly limited to “satellites operating in the C-band and/or Ku-band.” This would need to be changed to “satellites operating in the C-band and/or Ku-band and/or Ka-band.” Second, an earth station application is defined as “routine” only if it conforms to all antenna, power, coordination, radiation hazard, and FAA notification rules, and accesses only Permitted List satellites “in the conventional C-band or Ku-band frequency bands.”³⁷ Here again, this definition would need to be changed to apply to satellites “in the conventional C-band, Ku-band, or Ka-band frequency bands.”

CONCLUSION

For the foregoing reasons, the Coalition submits that the time has come to extend to Ka-band satellite systems the streamlining initiatives previously put in place for C- and Ku-band systems. Accordingly, we urge the Commission to initiate a rulemaking proceeding to implement the proposals discussed herein, such that (1) the “ALSAT” earth station designation would be broadened to include GSO/FSS Ka-band operations, (2) GSO/FSS Ka-band satellites would be eligible for inclusion on the Permitted List, and (3) the definitions of “Permitted Space Station List” and “Routine processing or licensing” in Section 25.201 would be amended to include GSO/FSS Ka-band operations.

³⁷ 47 C.F.R. § 25.201.

Respectfully submitted,

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